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LIGATURE OF THE SPERMATIC CORD FOR CONDITIONS  
OTHER THAN HYPERTROPHY OF THE  
PROSTATE GLAND.

BY

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*Read before the Philadelphia Academy of Surgery,  
November 4, 1895.*



# LIGATURE OF THE SPERMATIC CORD FOR CONDITIONS OTHER THAN HYPERTROPHY OF THE PROSTATE GLAND.<sup>1</sup>

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AT the meeting of the Academy in November, 1894, I read a brief paper on "Ligature of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate Gland," in which this operation was advocated as a substitute for that of castration, which had in a number of instances been performed, but which it was thought would not receive general sanction, by reason of the objection entertained by patients to the removal of the testes, to the mental and moral condition provoked by the operation, and the legal questions which might arise. The operation in itself was not regarded as entirely free from danger, although it did not involve the section of large tissue-surfaces. Since the reading of this paper I have taken occasion to perform the operation of ligature of the spermatic cord in dogs, in order to determine (1) the conditions accompanying the operation, (2) the preferable method of operation, (3) the effect produced by the operation upon the testes and prostate gland. Three dogs of full growth, in apparent good health, with the testes fully developed—of the setter and spaniel breed—were selected, and the cord ligatured in the following manner:

In the first the cord on each side was exposed by an incision, and an aseptic silk ligature was applied, the ends cut off, and the wound closed by interrupted sutures of aseptic silk, and sealed by collodion iodoform-gauze.

In the second an attempt was made to ligature the cord subcutaneously. Owing to the absence of the proper needle, the effort was a failure, and the ligature could not be firmly applied to the cord. It was hoped, however, at the time of the operation, sufficient pressure had been exerted to occlude the artery. In the third animal, on one side the cord was exposed, a double ligature applied, and the cord severed between. On the other side the cord was exposed and tied with a single ligature. The material used in the operation on this animal—ligatures and sutures—was made of hemp, which had been immersed in carbolic solution. The closure and treatment of the wound were the same as in the first instance.

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As to the conditions accompanying the operation, the care of the animals after the operation, owing to circumstances beyond control, was of such character as to make it not possible to decide whether the conditions which supervened in the first and second—suppuration at the site of the ligature—were the result of defective treatment or of the mutilation of tissue incidental to the operative procedure. The stitch-abscesses were undoubtedly caused by the efforts of the animals to dislodge the sutures. In the third animal the wound healed without suppuration. The inflammation which occurred in the first and second animals was not of a severe character, and did not, as reported by the attendant, make any marked impression upon the health of the animals.

As a result of the conditions which appeared after the operations, it is difficult to make affirmation as to the preferable method of applying the ligature, unless it would be to the effect that the open method provided conditions most favorable to primary union. This method not only insures inclusion by the ligature of the entire cord, but it affords means for drainage in the event of the occurrence of suppuration.

The specimens taken from the animals at the expiration of seven weeks from the time of operation are before you for examination. In those removed from the first and third animals there are present marked evidences of atrophic changes in the testes and prostate glands—reduction of the testes to what may be fairly stated to be one-third the normal size, with evident reduction in the size of the prostate gland. Microscopic examination of sections which had not been very well made showed that the changes which had occurred in the testes were those of disintegration, due undoubtedly to the absence of proper nutrition. Some changes in the structure of the prostate gland were also observed, but not sufficiently marked were they to establish their character.

If from such limited observations conclusions can be drawn, it might be proper to affirm that—1. Ligature of the spermatic cord will produce atrophic changes in the testes and prostate gland. There is reason to believe from the observations made that the changes which occur are sufficient to obliterate the function of these organs, consisting as they do, undoubtedly, in structural disintegration. The vascular supply interfered with by the ligature of the cord is that which gives nutrition to the secreting elements of the testes. Sufficient blood-supply, it is believed, is derived from other sources, and is distributed in such manner to the testicular coverings as will prevent gangrene of the organ.

2. The effect on the prostate gland produced by ligature of the cord is shown to be the same as that produced by castration, that is, atrophic changes. Castration undoubtedly destroys functional activity of the prostate gland, and is accomplished through the well-established anatomical and physiological relations of the two organs. Structural disintegration, through which the function of the testes is entirely obliterated, will accomplish the same result, and this can be produced by ligature of the spermatic cord.

Ligature of the cord is an operation to be preferred to castration, for these reasons: 1. If any distinction can be made as to danger, it should be in favor of the former. 2. The mental and moral effect produced by the removal of the testes would, in most cases, be very marked; the mere suggestion of the operation would be sufficient in many cases to elicit a refusal. The proposition to perform an operation similar in character to that for the relief of varicocele, with the statement always that obliteration of the function of the testes is expected to result, it is believed, would be more readily entertained.

Dr. Henry E. Stafford, of Salinas, California, reports in the *Pacific Medical Journal* for July, 1895, the case of a patient, aged eighty-three, in whom he performed ligature of the cord for enlarged prostate gland. He ligatured the cord on the right side only, as the right lobe was the larger, using as an anæsthetic agent an injection of a one per cent. solution of cocaine in very cold sterilized water. Three weeks after the operation he found, by rectal examination, the right lobe of the gland much reduced in size, and there was improvement in passing urine. Dr. Stafford proposed at a later day to ligature the left cord.

The founder of this Academy, in framing its organic law, established its purposes upon a broad foundation—"The cultivation and improvement of the science and art of surgery, the elevation of the medical profession, the promotion of the public health, and such other matters as may come legitimately within its sphere." With the object in view of promoting the public health, I have ventured to call the attention of the Fellows this evening, briefly, to the subject expressed in the title of my paper. Believing the operation of ligature of the cord to be devoid of danger and effective in destroying the function of the testes, I suggest its performance as a curative remedy in a class of patients which finds its home in the public institutions of the Commonwealth, devoted to the care of the feeble-minded, the idiot, the pervert. I think it is the experience of those having charge of institutions of this character that perversion of the sexual function is largely responsible for the mental



and moral condition of a very large class of inmates, and that curative measures are of little avail so long as the function remains. Castration has from time to time, I think, been suggested, but has never been practised, owing to the difficulty of obtaining the consent of parents and guardians, on the one hand, and the refusal, on the other, of the physician to assume the responsibility of performing an operation not sanctioned by public opinion or authorized by legislative enactment. To obtain the consent of parents or guardians to the performance of an operation which involves such palpable mutilation as removal of the testes would always be difficult, if not impossible, whether they might belong to an ignorant or cultivated class of people. It would be still more difficult to obtain authority under legislative enactment, since in such matters lawmakers would be prone to regard the opinion of the public, and up to this point it is safe to say public opinion is not educated.

It would be different, it seems to me, with regard to the operation of the ligature of the cord. In this operation mutilation, as understood by parents or guardians, is absent, the atrophic changes which occur progress slowly, reduction in the size of the organs is gradual, if within the power of the patient to appreciate it, the mental and moral effect would be slight. In the performance of an operation of this character, for curative effects, under such regulations as the authorities of institutions might provide and enforce, would legislative sanction be required? Cannot the same liberty of action be granted the conscientious surgeon in the performance of this operation as in that which involves the removal of the healthy ovaries in the female for relief of conditions which menace her health and endanger, possibly, her life? As is well known, the operation of oöphorectomy has not only been advocated, but practised in females suffering from certain forms of insanity, with a view to obtain curative effects. Why not apply the same rule of practice in the case of the male? and especially, it seems to me, it is proper to do so, when in the male relief may be afforded by an operation of very much less magnitude than that requisite in the female.

With the intention, therefore, of doing that which may promote the public health, I have thus briefly presented this subject with the hope that it may engage your attention. I feel confident the authorities of institutions, both medical and administrative, having the care of the class of patients referred to, will gladly receive any suggestions which may be offered them, and which may in any way aid them in improving the methods of treatment at their command.